Alessandro Falsone's

Curriculum Vitae et Studiorum

Lastly updated: November 7, 2018

Affiliation

Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB)
Politecnico di Milano
Via Ponzio, 34/5 – 20133 Milano (MI), Italy
Phone: (+39) 02 2399 4028
E-mail: `alessandro.falsone@polimi.it`
Homepage: `http://home.deib.polimi.it/falsone`

Education

Ph.D. in Information Technology – Systems and Control **February 2018**

Politecnico di Milano
Ph.D. thesis: "Distributed decision making with application to energy systems"
Advisor: Prof. Maria Prandini.
Co-advisor: Prof. Simone Garatti.
Grade: cum laude.
ISCED 6

Laurea Magistrale in Ingegneria dell'Automazione (LM-25) **October 2013**

Politecnico di Milano
Master thesis: "A randomized approach to the prediction of critical situations for air traffic due to uncontrolled space debris reentry".
Advisor: Prof. Maria Prandini.
Grade: 110/110 cum laude.
Equal to: Master of Engineering in Automation and Control. (ISCED 5)

Laurea in Ingegneria dell'Automazione (L-8) **September 2011**

Politecnico di Milano
Grade: 110/110.
Equal to: Bachelor of Engineering in Automation and Control. (ISCED 5)

Diploma di Maturità Scientifica **July 2008**

Liceo Scientifico Statale Luigi Cremona
Grade: 88/100.
Equal to: High School Diploma. (ISCED 3)

Positions Held

Junior Assistant Professor **November 2018 →**

Politecnico di Milano
Research project: *"Distributed model predictive control for multi-agent systems affected by uncertainty"*.

Research Fellow **November 2017 – October 2018**

Politecnico di Milano
Holder of a research grant entitled: *"Distributed model predictive control with application to energy and transportation systems"*.

Academic Visitor **September 2016 – November 2016**

University of Oxford
Visiting period during PhD studies.

PhD Candidate **November 2014 – October 2017**

Politecnico di Milano
PhD candidate in Information Technology – Systems and Control division. Defense date: February 6, 2018.

Research Fellow **January 2014 – October 2014**

Politecnico di Milano
Holder of a research grant entitled: *"Randomized algorithm for nonlinear model identification"*.

Guest Researcher **October 2013 – December 2013**

Politecnico di Milano

Teaching Activities

Teaching Assistant

Course: Fondamenti di Automatica
Course for a Bachelor degree in Information and Telecommunication Engineering – 10 credits

Period: March 2018 – June 2018 (35 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Information and Telecommunication Engineering – 10 credits

Period: March 2017 – June 2017 (35 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Information Engineering – 10 credits

Period: March 2016 – June 2016 (15 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Biomedical Engineering – 7 credits

Period: October 2015 – January 2016 (28 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Information Engineering – 10 credits

Period: March 2015 – June 2015 (15 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Biomedical Engineering – 7 credits

Period: October 2014 – January 2015 (28 hours)

University: Politecnico di Milano

Course: Fondamenti di Automatica
Course for a Bachelor degree in Information Engineering – 10 credits

Period: March 2014 – June 2014 (30 hours)

University: Politecnico di Milano

Scholarships

PhD Scholarphip **2014–2017**

Ministero dell'Istruzione, dell'Università e della Ricerca
Winner (1st place) of a three-year scholarship for the PhD program in Information Technology.

Cavaliere del Lavoro Pietro Catelli **2011–2012**

Artsana Group
Winner (1st place) of a scholarship for academic achievements.

Certifications

Test Of English for International Communication – TOEIC **September 2011**

CEFR level: C1
Reading: 470/495, Listening: 480/495 – Total Score: 950/990.

Awards

Best Oral Presentation **2018**

Winner of the "Best Oral Presentation" award at the national conference Automatica.it 2018.

Dimitris N. Chorafas Prize **2018**

Winner of the Dimitris N. Chorafas Prize 2018.

Unlock Your Ability – ABB & PoliHub Challenge **2017**

Member of the "Beyond Energy Efficiency" team, selected for a six-months startup acceleration program at ABB premises.

IFAC CSS Student Competition **2015**

Member of the finalist team in the IFAC CSS student competition on "Optimal control to reduce emissions in gasoline engines", held at the European Control Conference 2015.

IEEE Video Clip Contest **2014**

Member of the winning team (1^{st} place).

Editorial Activities

Technical Program Committee Member **2018 – 2019**

CASE '19: 15th International Conference on Automation Science and Engineering.
ICARCV '18: 15th International Conference on Control, Automation, Robotics and Vision.

Contribution to the Organization of International Scientific Events

Webmaster **2017–2018**

Webmaster of the 21st ACM International Conference on Hybrid Systems: Computation and Control.

Additional Information

Judo black belt (sho dan) **March 2011**

Associazione Amici del Judo

Publications

Submitted

[S4] Fabio Belluschi, Alessandro Falsone, Daniele Ioli, Kostas Margellos, Simone Garatti, and Maria Prandini. "Distributed optimization for structured programs and its application to energy management in a building district". Submitted to IEEE Transactions on Control of Network Systems. Available online arXiv:1610.06332. 2018.

[S3] Alessandro Falsone, Luca Deori, Daniele Ioli, Simone Garatti, and Maria Prandini. "One-shot scenario-based design of a disturbance compensator for constrained stochastic linear systems with asymptotic optimality guarantees". Submitted to Automatica. 2018.

[S2] Alessandro Falsone, Kostas Margellos, and Maria Prandini. "A decentralized approach to multi-agent MILPs: finite-time feasibility and performance guarantees". Provisionally accepted as a regular paper on January 6, 2018. Available online arXiv:1706.08788. 2018.

[S1] Daniele Ioli, Alessandro Falsone, Mauro Alberti, and Maria Prandini. "An optimal strategy with auto-tuning capability for efficiently operating a cooling tower". Submitted to IEEE Transactions on Control Systems Technology. 2018.

International Journals

[J9] Alessandro Falsone, Kostas Margellos, Simone Garatti, and Maria Prandini. "Finite time distributed averaging over gossip-constrained ring networks". In: *IEEE Transactions on Control of Network Systems* (2018). To appear. DOI: 10.1109/TCNS.2017.2653418.

[J8] Alessandro Falsone, Kostas Margellos, and Maria Prandini. "A distributed iterative algorithm for multi-agent MILPs: finite-time feasibility and performance characterization". In: *IEEE Control Systems Letters* 2.4 (October 2018), pp. 563–568. DOI: 10.1109/LCSYS.2018.2844353.

[J7] Kostas Margellos, Alessandro Falsone, Simone Garatti, and Maria Prandini. "Distributed constrained optimization and consensus in uncertain networks via proximal minimization". In: *IEEE Transactions on Automatic Control* 63.5 (May 2018), pp. 1372–1387. DOI: 10.1109/TAC.2017.2747505.

[J6] Aida Brankovic, Alessandro Falsone, Maria Prandini, and Luigi Piroddi. "A feature selection and classification algorithm based on randomized extraction of model populations". In: *IEEE Transactions on Cybernetics* 48.4 (April 2018), pp. 1151–1162. DOI: 10.1109/TCYB.2017.2682418.

[J5] Daniele Ioli, Alessandro Falsone, Alessandro Vittorio Papadopoulos, and Maria Prandini. "A compositional modeling framework for the optimal energy management of a district network". In: *International Journal of Process Control* (2017). To appear. Extended version available online arXiv:1707.08494. DOI: 10.1016/j.jprocont.2017.10.005.

[J4] Alessandro Falsone, Kostas Margellos, Simone Garatti, and Maria Prandini. "Dual decomposition for multi-agent distributed optimization with coupling constraints". In: *Automatica* 84 (October 2017), pp. 149–158. DOI: 10.1016/j.automatica.2017.07.003.

[J3] Alessandro Falsone and Maria Prandini. "A randomized approach to probabilistic footprint estimation of a space debris uncontrolled reentry". In: *IEEE Transactions on Intelligent Transportation Systems* 18.10 (October 2017), pp. 2657–2666. DOI: 10.1109/TITS.2017.2654511.

[J2] Federico Bianchi, Alessandro Falsone, Maria Prandini, and Luigi Piroddi. "A randomised approach for NARX model identification based on a multivariate Bernoulli distribution". In: *International Journal of Systems Science* 48.6 (May 2017), pp. 1203–1216. DOI: 10.1080/00207721.2016.1244309.

[J1] Alessandro Falsone, Luigi Piroddi, and Maria Prandini. "A randomized algorithm for nonlinear model structure selection". In: *Automatica* 60 (October 2015), pp. 227–238. DOI: 10.1016/j.automatica.2015.07.023.

International Conferences

[C20] Vedad Causevich, Alessandro Falsone, Daniele Ioli, and Maria Prandini. "Energy management in a multi-building set-up via distributed stochastic optimization". In: *Proceedings of the 2018 American Control Conference (ACC 2018), Milwaukee, Wisconsin, USA*. June 2018.

[C19] Alessandro Falsone, Luca Deori, Daniele Ioli, Simone Garatti, and Maria Prandini. "Optimally shaping the stationary distribution of a constrained discrete time stochastic linear system via disturbance compensation". In: *Proceedings of the 56th Conference on Decision and Control (CDC 2017), Melbourne, Australia*. December 2017, pp. 629–634. DOI: 10.1109/CDC.2017.8263731.

[C18] Alessandro Falsone, Kostas Margellos, Simone Garatti, and Maria Prandini. "Linear programs for resource sharing among heterogeneous agents: the effect of random agent arrivals". In: *Proceedings of the 56th Conference on Decision and Control (CDC 2017), Melbourne, Australia*. December 2017, pp. 3853–3858. DOI: 10.1109/CDC.2017.8264226.

[C17] Giorgio Manganini, Alessandro Falsone, Jan Siroky, and Maria Prandini. "A data-based approach to power capacity optimization". In: *Proceedings of the 56th Conference on Decision and Control (CDC 2017), Melbourne, Australia*. December 2017, pp. 1663–1668. DOI: 10.1109/CDC.2017.8263889.

[C16] Stefano Mutti, Alessandro Falsone, Kostas Margellos, and Maria Prandini. "A proximal minimization based distributed approach to power control in wireless networks: performance and comparative analysis". In: *Proceedings of the 56th Conference on Decision and Control (CDC 2017), Melbourne, Australia*. December 2017, pp. 3513–3518. DOI: 10.1109/CDC.2017.8264174.

[C15] Daniele Ioli, Luca Deori, Alessandro Falsone, and Maria Prandini. "A two-layer decentralized approach to the optimal energy management of a building district with a shared thermal storage". In: *Proceedings of the 20th World Congress of the International Federation of Automatic Control (IFAC 2017), Toulouse, France*. Vol. 50. 1. July 2017, pp. 8844–8849. DOI: 10.1016/j.ifacol.2017.08.1540.

[C14] Daniele Ioli, Alessandro Falsone, Marianne Hartung, Axel Busboom, and Maria Prandini. "A smart grid energy management problem for data-driven design with probabilistic reachability guarantees". In: *Proceedings of the 4th International Workshop on Applied Verification for Continuous and Hybrid Systems (ARCH 2017), Pittsburgh, Pennsylvania, USA*. April 2017, pp. 2–19.

[C13] Alessandro Falsone, Kostas Margellos, Simone Garatti, and Maria Prandini. "Distributed constrained convex optimization and consensus via dual decomposition and proximal minimization". In: *Proceedings of the 55th Conference on Decision and Control (CDC 2016), Las Vegas, Nevada, USA*. December 2016, pp. 1889–1894. DOI: 10.1109/CDC.2016.7798540.

[C12] Caterina Brocchini, Alessandro Falsone, Giorgio Manganini, Ondrej Holub, and Maria Prandini. "A chance-constrained approach to the quantized control of a heat ventilation and air conditioning system with prioritized constraints". In: *Proceedings of the 22nd International Symposium on Mathematical Theory of Networks and Systems (MTNS 2016), Minneapolis, Minnesota, USA*. July 2016, pp. 137–144.

[C11] Daniele Ioli, Alessandro Falsone, and Maria Prandini. "Energy management of a building cooling system with thermal storage: a randomized solution with feedforward disturbance compensation". In: *Proceedings of the 2016 American Control Conference (ACC 2016), Boston, Massachusetts, USA*. July 2016, pp. 2346–2351. DOI: 10.1109/ACC.2016.7525268.

[C10] Kostas Margellos, Alessandro Falsone, Simone Garatti, and Maria Prandini. "Proximal minimization based distributed convex optimization". In: *Proceedings of the 2016 American Control Conference (ACC 2016), Boston, Massachusetts, USA*. July 2016, pp. 2466–2471. DOI: 10.1109/ACC.2016.7525287.

[C9] Daniele Ioli, Alessandro Falsone, Simone Schuler, and Maria Prandini. "A compositional framework for energy management of a smart grid: a scalable stochastic hybrid model for cooling of a district network". In: *Proceedings of the 12th IEEE International Conference on Control and Automation (ICCA 2016), Kathmandu, Nepal*. June 2016, pp. 389–394. DOI: 10.1109/ICCA.2016.7505308.

[C8] Kostas Margellos, Alessandro Falsone, Simone Garatti, and Maria Prandini. "Constrained optimal control of stochastic switched affine systems using randomization". In: *Proceedings of the 2016 European Control Conference (ECC 2016), Aalborg, Denmark*. June 2016, pp. 2559–2554. DOI: 10.1109/ECC.2016.7810675.

[C7] Daniele Ioli, Alessandro Falsone, and Maria Prandini. "An iterative scheme to hierarchically structured optimal energy management of a microgrid". In: *Proceedings of the 54th Conference on Decision and Control (CDC 2015), Osaka, Japan*. December 2015, pp. 5227–5232. DOI: 10.1109/CDC.2015.7403037.

[C6] Giorgio Manganini, Alessandro Falsone, and Maria Prandini. "A majority voting classifier with probabilistic guarantees". In: *Proceedings of the 2015 Conference on Control Applications (CCA 2015), Sydney, Australia*. September 2015, pp. 1084–1089. DOI: 10.1109/CCA.2015.7320757.

[C5] Danilo Caporale, Luca Deori, Roberto Mura, Alessandro Falsone, Riccardo Vignali, Luca Giulioni, Matteo Pirotta, and Giorgio Manganini. "Optimal control to reduce emissions in gasoline engines: an iterative learning control approach for ECU calibration maps improvement". In: *Proceedings of the 2015 European Control Conference (ECC 2015), Linz, Austria*. July 2015, pp. 1420–1425. DOI: 10.1109/ECC.2015.7330738.

[C4] Alessandro Falsone and Maria Prandini. "An iterative scheme for the approximate linear programming solution to the optimal control of a Markov Decision Process". In: *Proceedings of the 2015 European Control Conference (ECC 2015), Linz, Austria*. July 2015, pp. 1200–1205. DOI: 10.1109/ECC.2015.7330703.

[C3] Daniele Ioli, Alessandro Falsone, and Maria Prandini. "Optimal energy management of a building cooling system with thermal storage: a convex formulation". In: *Proceedings of the 9th IFAC Symposium on Advanced Control of Chemical Processes (ADCHEM 2015), Whistler, British Columbia, Canada*. Vol. 48. 8. June 2015, pp. 1150–1155. DOI: 10.1016/j.ifacol.2015.09.123.

[C2] Alessandro Falsone, Luigi Piroddi, and Maria Prandini. "A novel randomized approach to nonlinear system identification". In: *Proceedings of the 53rd Conference on Decision and Control (CDC 2014), Los Angeles, USA*. December 2014, pp. 6516–6521. DOI: 10.1109/CDC.2014.7040411.

[C1] Alessandro Falsone, Fabio Noce, and Maria Prandini. "A randomized approach to space debris footprint characterization". In: *Proceedings of the 19th World Congress of the International Federation of Automatic Control (IFAC 2014), Cape Town, South Africa*. Vol. 47. 3. August 2014, pp. 6895–6900. DOI: 10.3182/20140824-6-ZA-1003.00612.